Loureiro Engineering Associates, Inc.

October 1, 2008

The Black & Decker Corporation
19701 Da Vinci
Lake Forest, California 92610

Attn: Ms. Lorraine Sedlak, CIH, CSP
Director, Health, Safety & Environmental

RE: Report – Vibratory Finishing Area Investigation Activities
Baldwin Hardware Manufacturing Corporation Facility
841 East Wyomissing Boulevard, Reading, Pennsylvania

Dear Ms. Sedlak:

This report has been prepared by Loureiro Engineering Associates, Inc. (LEA) to document the investigation activities conducted by LEA within the Vibratory Finishing Area (Building 3A) of the Baldwin Hardware Manufacturing Corporation (Baldwin) facility located at 841 East Wyomissing Boulevard in Reading, Pennsylvania (the site). The location of the site is shown in Figure 1. This report includes a description of the field-investigative methods and procedures used in obtaining the data collected and a presentation of the laboratory analytical results for the samples obtained during the investigation. In summary, copper, lead, and zinc are present in soil beneath the concrete slab floor within the Vibratory Finishing Area of Building 3A at concentrations below the applicable Pennsylvania Department of Environmental Protection (PADEP), Act 2 regulatory criteria. Based on an evaluation of the data, no further action is warranted at this time.

1.0 BACKGROUND

On June 6, 2008, LEA was contacted by you regarding a potential release of constituents from the trench located beneath the vibratory tumblers used in the Vibratory Finishing Area of Building 3A. The vibratory finishing operations in this area were discontinued on June 3, 2008. The operations included the use of vibratory tumblers within which brass parts were tumbled in an acidic solution. The potential release was identified based on a stain observed on the exterior wall of Building 3A.

Following our preliminary discussions, an LEA representative mobilized to the site on June 6, 2008 to meet with Baldwin personnel to discuss the vibratory finishing process and to inspect the conditions of the trench and stain on the exterior wall. The conditions observed at the time of

this inspection suggested a potential release to the subsurface and are depicted in the Photodocumentation sheets provided in Attachment 1.

Also on June 6, 2008, Baldwin personnel notified the PADEP of the potential incident through the PADEP *Emergency Notification Line*. As a follow-up to this notification, Mr. Nicholas Tokarczyk, a solid waste specialist from the Reading District Office of the PADEP, met with Baldwin personnel on June 9, 2008 to perform an inspection of the Vibratory Finishing Area, including the concrete trench and the exterior building wall adjacent to the trench. At the time of his inspection, Mr. Tokarczyk stated that, based on his observations, he did not think the incident was a significant release or required an emergency response. During his investigation, Mr. Tokarczyk made a request that he be kept informed regarding the progress of the investigation.

2.0 METHODS AND PROCEDURES

At the request of counsel, a Scope of Work (SOW) was prepared to investigate potential impacts to the subsurface from any release of constituents from the Vibratory Finishing Area operations. The SOW, dated June 10, 2008, identified the objectives of the investigation and described the methods and procedures to be used in conducting the investigation of this area of the site. The objectives of the investigation were to: (i) identify whether or not constituents have been released to the subsurface; (ii) identify the subsurface materials that may affect contaminant transport at the site; and (iii) visually assess the building foundation wall for signs of deterioration that may require repair. The field methods and laboratory analytical procedures used by LEA personnel in meeting these objectives are described below.

On June 11, 12, and 13, 2008, LEA personnel conducted the field investigation activities. The conditions observed at the time of the investigation are depicted in the Photodocumentation sheets provided in Attachment 1. At the on-set of these activities, the concrete trench located beneath the vibratory tumblers in Building 3A was inspected. Along the length of the trench, pairs of wooden stakes were observed to be set vertically within the concrete and to extend below the surface of the trench. The pairs of stakes were spaced approximately every three feet. The stakes were apparently used in forming the trench at the time that the concrete trench was poured. The stakes were observed to be disintegrated to varying degrees, resulting in possible migration pathways to the subsurface. Each stake location was probed to assess the degree of disintegration and the depth to which an opening may exist to the subsurface.

At the northern extent of the trench, an opening was observed to a maximum depth of approximately 1.5 feet below the surface of the trench. The openings within the remainder of the northern half of the trench were limited to a depth of approximately 0.08 feet below the surface of the trench. Openings along the southern half of the trench were probed to depths ranging from approximately 0.25 feet to 1.5 feet below the surface of the concrete trench. At the southern

extent of the trench, openings were observed to a maximum depth of approximately 2 feet below the surface of the trench, at which depth refusal was encountered.
To verify the nature of the subsurface materials present below the trench, LEA field personnel advanced three soil borings in the Vibratory Finishing Area of Building 3A. Also, LEA field personnel advanced one soil boring adjacent to the stain on the exterior wall of the facility building. The borings, identified as SB-VF-01, SB-VF-02, SB-VF-03, and SB-VF-04, were located as shown in Figure 2. To the extent practicable, the borings were advanced at the wooden stake locations that were observed to be open to the greatest depths. The soil borings were advanced using a rotary hammer drill to core through the concrete or asphalt and a hand auger to bore through and sample the subsurface soils. The subsurface soil samples were obtained in accordance with LEA's *Standard Operating Procedure for Hand Auger Borings* (Attachment 2).

Each boring was advanced under the supervision of an LEA geologist. At each boring location, the LEA geologist prepared a Geologic Boring Log documenting the visual classification of the soils encountered. Copies of the Geologic Boring Logs are provided as Attachment 3. The subsurface soils that were encountered were classified and recorded on the logs using a modified Burmister soil classification system in accordance with LEA's *Standard Operating Procedure for Geologic Logging of Unconsolidated Sedimentary Materials* (Attachment 2).

At each soil boring location, a discrete sample was collected from each two-foot interval in accordance with LEA's *Standard Operating Procedure for Soil Sampling* (Attachment 2). All of the samples were screened in the field for pH and for the presence of volatile organic compounds (VOCs) using a hand-held photo-ionization detector (PID). The samples were submitted to Averill Environmental Laboratory, Inc. of Plainville, Connecticut (AEL), a Pennsylvania Department of Health-Certified Laboratory. LEA instructed AEL to analyze select samples obtained from each soil boring for metals (arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, and zinc) by mass analysis and Toxicity Characteristic Leaching Procedure (TCLP) analysis.

To visually assess the integrity of the foundation wall below the ground surface, LEA field personnel removed the concrete slab and trench in the area of the west building wall. The soils beneath the concrete in this area were excavated to a depth of approximately four feet below the concrete floor to expose the foundation wall in the vicinity of the stain observed on the exterior wall. An opening of approximately 1.5 feet by 1.5 feet was made at the surface to expose the foundation wall at depth.

The thickness of the concrete trench was observed to be approximately 0.3 feet. Water was encountered during the advancement of the hand auger at approximately 0.5 feet below the bottom of the trench. The pH of the water was recorded to be 6.21 at soil boring SB-VF-01, 8.24 at soil boring SB-VF-02, and 5.70 at the sump located in the center of the trench. Approximately 15 gallons of water was pumped from beneath the trench at soil boring SB-VF-01 into a 55-

gallon drum. Once the water was pumped from beneath the concrete trench, approximately 1.75 feet of stone sub-base (trap rock, iron-stained) was removed from beneath the trench so that the native soil could be sampled.
In addition to the water that was pumped from beneath the concrete trench and contained in a 55-gallon drum, the concrete and soil removed and excavated from the area of investigation were contained in 55-gallon drums and one cubic-yard waste container. Also, the decontamination water generated during the investigation activities was contained in a 55-gallon drum. The drums were labeled, as appropriate, with the date of containerization and identification as to the location from which the material was derived. A single concrete sample, composited from several areas of the trench, was collected and analyzed for metals following TCLP analysis for waste characterization purposes.

3.0 FIELD OBSERVATIONS AND LABORATORY ANALYTICAL RESULTS

As provided in the Geologic Boring Logs (Attachment 3), the borings were advanced to depths ranging from approximately 2 to 4 feet below grade, at which depths advancement of the hand auger was met with refusal. The subsurface materials encountered during the advancement of the soil borings were observed to consist primarily of yellow-orange to orange-brown fine to very fine sand and silt with varying amounts of clay. The subsurface soil encountered did not appear to be chemically impacted based on visual and olfactory evidence. None of the soil samples that were collected exhibited a response on the field PID.

Based on a visual inspection of the building foundation wall at the southern extent of the concrete trench, there has been no impact to the foundation. There was no observed staining on the interior face of the wall. Also, LEA field personnel did not observe any chemical deterioration or disintegration of the concrete.

A copy of the laboratory report prepared by AEL is provided as Attachment 4. A summary of the sampling and analytical information for the samples collected during the investigation is provided in Table 1. A summary of the laboratory results (mass) presented in the AEL laboratory analytical report for the samples obtained from the borings is provided in Table 2. As shown in this table, arsenic, barium, chromium, copper, lead, mercury, nickel, and zinc were detected in one or more of the samples that were analyzed. Cadmium, selenium, and silver were not detected in any of the samples.

The concentrations of the metals detected were compared to background concentrations for this area of the site. Background metals concentrations for this area of the site are based on the metals concentrations previously reported by AEL for samples obtained from soil borings SB-04-02-16, SB-06-02-01, SB-12-01-02, and SB-14-04-01 (Figure 2). The concentrations of metals reported by AEL for these samples are summarized in Table 3. Based on the comparison of the results to the background concentrations, elevated levels of copper, lead and zinc are present in soil beneath the concrete trench and are indicative of a release to the subsurface.

The highest concentration of copper was reported for the soil sample obtained from a depth of 2.25 to 4 feet below the concrete slab at boring SB-VF-01. A copper concentration of 2,960 milligrams per kilogram (mg/kg) was reported for this sample. The highest concentration of lead, detected at a concentration of 114 mg/kg, was reported for the soil sample obtained from a depth of 1.75 to 2.25 feet below the concrete slab at boring SB-VF-01. The highest concentration of zinc reported to be 1,130 mg/kg, was detected in the soil sample obtained from a depth of 2.25 to 4 feet below the concrete slab at boring SB-VF-01. Boring SB-VF-01 was located at the southern extent of the concrete trench at the building foundation wall (Figure 2).

The concentrations of copper, lead, and zinc in soil in the vicinity of soil boring SB-VF-01 do not exceed concentrations for the applicable clean-up criteria established by the PADEP under Act 2: The concentrations are below the soil-to-groundwater criteria for a residential, non-used aquifer setting (Table 4); and, the concentrations are below the soil criteria for a residential setting (Table 5).

A summary of the laboratory analytical results (TCLP) for the soil samples obtained from the borings is provided in Table 6. These results were compared to the criteria established by the United States Environmental Protection Agency (EPA) for defining whether or not media are characteristically hazardous. Based on this comparison, the concentrations of metals detected in the leachate of the samples do not exceed the EPA criteria (Table 7).

A summary of the laboratory analytical results (TCLP) for the soil (DRS-VF-01) and concrete (DRS-VF-02) samples collected to characterize the investigative derived waste (IDW) is provided in Table 8. These results were compared to the criteria established by the EPA for defining whether or not media are characteristically hazardous. Based on this comparison, the concentrations of metals detected in the leachate of the IDW samples do not exceed the EPA criteria (Table 9). Thus, the soil and concrete removed and excavated from the subsurface during the investigation activities are not characteristically hazardous.

A summary of the analytical results for the field equipment rinsate blank sample obtained during the investigation activities is provided in Table 10. The field equipment rinsate blank provides a means to assess the adequacy of field decontamination efforts. None of the constituents of concern were detected in this sample. Thus, the field decontamination efforts were adequate.

4.0 RECOMMENDATIONS

Based on the evaluation of the field observations and laboratory analytical results, no further action is warranted. It is recommended that the area of the excavated soils be backfilled with clean soil. Further, the backfilled area should be capped with concrete to a level flush with the concrete floor surface for the remaining area of the Vibratory Finishing Area of Building 3A.

Should you care to discuss this report, please feel free to contact me directly at (860) 410-2976.

Sincerely,

LOUREIRO ENGINEERING ASSOCIATES, INC.

David N. Scotti, P.G.
Project Manager

Copy to: L. Biagioni (Black & Decker)
D. Hancock (Baldwin)
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Attachments